

REMARKS

By the present amendment, claim 36 has been canceled without prejudice. No claims have been amended or added. Accordingly, claims 1-35 and 37 are pending in the present application.

In the Office Action mailed February 4, 2009, the Examiner rejected claims 1-13, 15-18, 21-29, and 32-37 under 35 U.S.C. §103(a) and objected to claims 14, 19, 20, 30, and 31 as being dependent upon a rejected base claim. Applicants respectfully traverse these rejections for at least the reasons cited in this Response and respectfully request reconsideration and allowance of the application.

Claim Objection

The Examiner objected to the second claim 35 for improper numbering and requested that the second claim 35 be renumbered as claim 36. Applicants have made the requested numbering change. However, Applicants believe the objection is now moot in light of the cancellation of claim 36 above.

Rejection of Second Claim 35 Under 35 U.S.C. §112, First Paragraph

The Examiner rejected second claim 35 (now referred to as claim 36) under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement, suggesting that the subject matter of claim 36 did not have support in Applicants' Specification. In order to expedite prosecution, Applicants have canceled claim 36, as indicated above. Accordingly, this rejection is moot.

Rejection of Claims 1-5, 7-13, 15-17, 22-28, and 33-37 Under 35 U.S.C. §103(a)

Claims 1-5, 7-13, 15-17, 22-28, and 33-37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lippmann, *et al.* (U.S. Patent No. 5,371,500) in view of Cook (U.S. Patent No. 4,894,864). Applicants respectfully traverse this rejection since the cited portions of the cited references, taken alone or in combination, fail to teach or suggest every limitation of the rejected claims.

For example, claim 1 recites, “a device comprising an interface circuit formed on a first integrated circuit (IC) for generating a differential current signal responsive to a reference signal and to a digital data input; and a circuit element formed external of the first IC for generating an output signal on the basis of the differential current signal.” (Emphasis added). Applicants submit that not all of these limitations are taught or suggested by the cited portions of the cited references.

In making the rejection, the Examiner relies on Lippman to show a device comprising an interface circuit formed on a first integrated circuit (IC) for generating a signal responsive to a reference signal and to a digital data input; and a circuit element formed external of the first IC for generating an output signal on the basis of the signal from the first IC. However, the Examiner acknowledges that Lippman fails to teach or suggest that the signal from the first IC is a differential current signal and relies on Cook to cure this deficiency. (See Detailed Action, pages 3 and 4).

In response, Applicants first note that the cited portions of Lippman do not teach or suggest a circuit element formed external of the first IC for generating an output signal. Specifically, the cited portions of Lippman appear to describe a device in which interface circuitry 30 merely converts digital signals from digital circuitry 22 to analog signals and also converts analog signals from analog circuitry 36 to digital signals, taking voltage variations into account. (Lippman; Col. 2, lines 40-44). Once the signal is converted by interface circuitry 30, there is no teaching or suggestion of any circuit element external of a first IC for generating an output signal, as recited in Applicants’ claims. Even if the digital circuitry 22 and the analog circuitry 36 provide input signals to the interface circuitry 30 for conversion, the cited portions of Lippman do not teach or suggest that either the digital circuitry, the analog circuitry, or any other circuit element external of the interface circuitry 30 actually generates an output signal. The cited portions of Cook also fail to teach or suggest this limitation. Thus, Applicants submit that the cited portions of the cited references do not teach or suggest a circuit element formed external of the first IC for generating an output signal on the basis of the differential current signal.

Furthermore, Applicants also submit that the cited portions of Lippmann and Cook do not teach or suggest “an interface circuit formed on a first integrated circuit (IC) for generating a

differential current signal responsive to a reference signal and to a digital data input,” as recited in claim 1. Lippmann shows a digital to analog converter (D/A) 88 receiving reference signals on lines 26 and 28 and a digital signal on a bus 58 and generating a single-ended analog signal on a line 89. (See FIGS. 1, 3 and 4.) Lippmann does not teach generating a differential current signal, as stated in the rejection. The rejection states that Cook describes “generating a differential current signal responsive to a reference signal and to a digital data input.” Cook describes an input path 17 providing an output voltage (labeled as I) in response to digital input signals and a transconductance amplifier 21 providing an analog output signal in the form of a current in response to the output voltage I (see FIG. 1, column 2, lines 57-59, and column 2, line 68 to column 3, line 2.). Cook does not describe generating a differential current signal responsive to a reference signal and to a digital data input, as recited in claim 1. Thus, Lippmann and Cook do not describe this feature of claim 1.

For at least the above reasons, Applicants submit that claim 1 is patentable over Lippmann in view of Cook. Claims 2-5, 7-13, and 15-17, depend on claim 1 and are patentable over Lippmann in view of Cook for at least the reasons noted for base claim 1.

Independent claim 22 recites the features noted above for claim 1. In particular, claim 22 recites “an analog integrated circuit (IC) ... responsive to an input differential current signal generated externally as a function of a reference signal and a digital data input” and “a circuit element for generating an output signal on the basis of the differential current signal.” These features are not described by Lippmann or Cook for the reasons noted above for claim 1. Claims 23-28 are dependent on claim 22. Claims 22-28 are thus patentable over Lippmann in view of Cook for at least the reasons noted for base claim 1.

Independent claim 33 also contains subject matter similar to that contained in claim 1, discussed above. Thus, Applicants submit that claim 33 is also allowable for at least the reasons argued above in connection with claim 1. Claims 34-35 and 37 are dependent on claim 33. Claims 34-35 and 37 are thus patentable over Lippmann in view of Cook for at least the reasons noted for base claim 1.

Accordingly, the §103(a) rejection of claims 1-5, 7-13, 15-17, 22-28, and 33-37 should be withdrawn.

Rejection of Claims 6, 18, 21, 29, and 32 Under 35 U.S.C. §103(a)

Claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Lippmann in view of Cook and Rosch *et al.* (U.S. Patent No. 5,274,702).

Claims 18, 21, 29, and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lippmann in view of Cook and Nakamura *et al.* (U.S. Patent No. 4,573,153).

Claims 6, 18, and 21 are dependent on claim 1. Claims 29 and 32 are dependent on claim 22. The combination of Lippmann and Cook does not disclose all of the elements of base claims 1 and 22, as discussed above. Hence, the combination of Lippmann and Cook is an insufficient basis for the §103(a) rejection of dependent claims 6, 18, 21, 29, and 32. The other references do not address the deficiencies of Lippmann and Cook.

Accordingly, the §103(a) rejection of claims 6, 18, 21, 29, and 32 should be withdrawn.

Allowable Subject Matter

Applicants note with appreciation the Examiner's indication that claims 14, 19, 20, 30, and 31 contain allowable subject matter and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

CONCLUSION

In view of the foregoing, Applicants submit that all pending claims in the application are patentable. Accordingly, reconsideration and allowance of the present application are respectfully requested. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

No fees are believed due in connection with the present submission. However, if it is determined that fees are due, the Commissioner is hereby authorized to charge payment of any fee(s) or any underpayment of fee(s) or credit any overpayment(s) to Deposit Account No. 17-0026. If necessary, applicant requests, under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application and to charge the fees for a large entity under 37 CFR 1.17(a).

Respectfully submitted,

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